IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 10/680,272 Confirmation No. : 6342
Applicant : Romelia H. Flores
Filed : October 7, 2003
TC/A.U. : 4114
Examiner : Park, George M.
Docket No. : BOC9-2003-0016 (384)

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Romelia H. Flores, a citizen of the United States, residing in Keller, Texas, hereby declare and state as follows:

1. I was employed by International Business Machines Corporation (IBM) of Armonk, New York at the time the above-identified application was conceived. I make this declaration in support the above-identified application.

2. IBM has invested substantial time and effort into the research, development, and marketing of their products, and in an effort to protect its rights in all new inventions, IBM requests that all employees prepare and submit confidential Invention Disclosure Forms upon conception by the inventor(s).

3. As a named co-inventor for this invention, I and my co-inventor prepared and submitted the attached Invention Disclosure No. BOC8-2002-0113 (hereinafter "Invention Disclosure") pursuant to IBM guidelines.

4. The Invention Disclosure was originally submitted for consideration to an IBM Attorney/Patent Professional for preparation of a patent application on October 9, 2002, and was insubstantially modified on December 9, 2002. The content of the Invention Disclosure has not been subsequently modified. The Invention Disclosure represents a fully conceived and workable invention as written. I reviewed the claims of the above-mentioned patent application prior to submission of the application to assure the claimed invention was fully supported by the

Invention Disclosure in light of the Invention Disclosure and art known at the time of the disclosure.

5. I diligently worked with outside counsel to prepare and file the above-mentioned patent application.

6. I make this Declaration to establish that my co-inventor and I conceived of the present invention at least as early as October 9, 2002, and exercised due diligence from that date to the date of filing for the above-identified patent application.

7. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the above-identified patent application or any patent issuing thereon.

Romelia H Flores

Romelia H. Flores

Date: February 14, 2008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/680,272	Confirmation No.	:	6342
Applicant	:	Romelia H. Flores			
Filed	:	October 7, 2003			
TC/A.U.	:	4114			
Examiner	:	Park, George M.			
Docket No.	:	BOC9-2003-0016 (384)			

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Biao Hao, a citizen of Canada, residing in Bedford, Texas, hereby declare and state as follows:

1. I was employed by International Business Machines Corporation (IBM) of Armonk, New York at the time the above-identified application was conceived. I make this declaration in support the above-identified application.

2. IBM has invested substantial time and effort into the research, development, and marketing of their products, and in an effort to protect its rights in all new inventions, IBM requests that all employees prepare and submit confidential Invention Disclosure Forms upon conception by the inventor(s).

3. As a named co-inventor for this invention, I and my co-inventor prepared and submitted the attached Invention Disclosure No. BOC8-2002-0113 (hereinafter "Invention Disclosure") pursuant to IBM guidelines.

4. The Invention Disclosure was originally submitted for consideration to an IBM Attorney/Patent Professional for preparation of a patent application on October 9, 2002, and was insubstantially modified on December 9, 2002. The content of the Invention Disclosure has not been subsequently modified. The Invention Disclosure represents a fully conceived and workable invention as written. I reviewed the claims of the above-mentioned patent application prior to submission of the application to assure the claimed invention was fully supported by the

Invention Disclosure in light of the Invention Disclosure and art known at the time of the disclosure.

5. I diligently worked with outside counsel to prepare and file the above-mentioned patent application.

6. I make this Declaration to establish that my co-inventor and I conceived of the present invention at least as early as October 9, 2002, and exercised due diligence from that date to the date of filing for the above-identified patent application.

7. I further declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code, and that such willful, false statements may jeopardize the validity of the above-identified patent application or any patent issuing thereon.

Biao Hao

Biao Hao

Date: 03/03/2008

APPENDIX A

Disclosure BOC8-2002-0113

Prepared for and/or by an IBM Attorney - IBM Confidential

Created By Biao Hao On 10/09/2002 11:46:49 AM MDT
Last Modified By Elaine Venturelli On 12/09/2002 10:41:49 AM EST

Required fields are marked with the asterisk (*) and must be filled in to complete the form .

***Title of disclosure (in English)**

Method To Build Total Peer Relationship System In An Organization

Summary

Status	Search Results Received
Final Deadline	
Final Deadline Reason	
*Processing Location	[redacted]
*Functional Area	[redacted]
Attorney/Patent Professional	Richard Tomlin/Boca Raton/IBM
IDT Team	[redacted]
Submitted Date	11/01/2002 09:40:26 AM MST
*Owning Division	[redacted]
Incentive Program	
Lab	
*Technology Code	[redacted]
[redacted]	

Inventors with a Blue Pages entry

Inventors: Biao Hao/Dallas/IBM, Romelia Flores/Dallas/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Hao, Biao	[redacted]	[redacted]	[redacted]	[redacted]
Flores, Romelia H.	[redacted]	[redacted]	[redacted]	[redacted]

> denotes primary contact

Inventors without a Blue Pages entry

IDT Selection

***Main Idea**

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.

An organization is a structured entity that defines relationship among its members and other organizations. The official structure of an organization is defined in the official organization charts. The main organization chart is usually a tree structure describing the hierarchy of the organization. It defines the official relationship among the members of the organization and relationship with other organizations. The organizational structure is often documented and implemented with a member directory (such as IBM BluePages). Members of the organization can query the directory for official relationship. The official relationship is formal, public, somehow static, and evident.

In addition to the main organizational structure, there are projects with team members across several departments or organizations. These projects usually have organization charts defining the organizational structure of projects. However, many projects are temporary. As projects come and go, the project organization charts are often discarded and untracked. Regardless of the changes in projects, the team members build strong relationship by working together for common project goals. The relationship across departments or organizations based on projects is public, but less formal and more transient. Usually it is not integrated into the overall organizational information system.

Members in an organization also build non-official relationship based on their official relationship, projects, or even common personal interests. The non-official peer relationship is often informal, dynamic, and hidden. Therefore it is not documented and implemented in the organizational information system.

In this invention, we propose a "total peer relationship" system that takes into consideration all the organizational structure and peer relationship, and a method to build such an organizational information system based on graph theory. The advantages of such a total peer relationship system are:

- It captures all the organizational structure and peer relationship. Therefore, it provides holistic view of the organization. Properly designed and implemented, indicators can also be extracted from the total peer relationship system to measure the strength of peer relationship and its evolvement with an organization.
- It encourages the organization to document the informal and transient organizational structure and peer relationship that are otherwise oblivious over time.
- It enables better communication among members of the organization by extending the functions of the member directory to provide answers to such query as "Find the shortest connection path to someone with Project Management skills".

2. How does the invention solve the problem or achieve an advantage,(a description of "the invention", including figures inline as appropriate)?

The total peer relationship system has two major parts. The first one includes the official organization charts. An official organization chart can usually be organized as a tree that describes the hierarchy of the organization. Other official cross-organizational structures can be organized as trees or directed graphs in addition to the main tree structure. Each node of the tree or graph represents a member of the organization. The member node contains organizational information, responsibility, contact information, and additional information such as projects and expertise. This part captures the official, rather static structure information. The second part is a repository that stores other relationship entities. Each project creates one or more relationship entities. Each individual member of the organization has one or more relationship entities. These relationship entities can generally be organized as directed graphs. Each node of a graph also represents a member of the organization. This part captures the official or unofficial, rather dynamic structure of the organization.

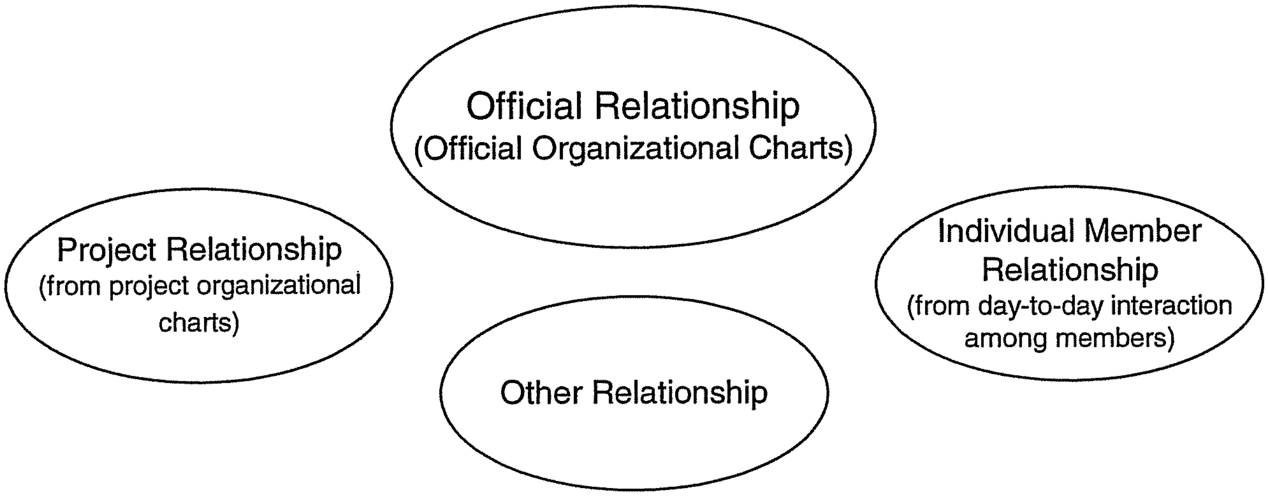
Official Relationship
(Official Organizational Charts)
Project Relationship
(from project organizational charts)
Individual Member Relationship
(from day-to-day interaction among members)
Other Relationship

Figure 1. The Total Peer Relationship System is an integrated system of all the relationship including official relationship (derived from official organizational charts), the project relationship (derived from project organizational charts), individual member relationship (derived from day-to-day interaction among members via email, instant messaging, voice, etc), and other relationship that does not fall into the above-mentioned categories.

These trees and directed graphs, joined together on member nodes, form a bigger directed graph that represents the total relationship within the organization. This total peer relationship system is the web that captures the fabric of the organization, static or dynamic, formal or informal, public or hidden. Applications can then be built to query the structure based on graph theory. An example query that can be executed on the system would be "Find the shortest connection between member A and B". Other high level information, such as how connected the whole graph is, can be used as indicators of the strength of peer relationship in the organization.

Other information in the member nodes (such as expertise) can be used for such query as "Find the shortest connection path to someone with Project Management skills".

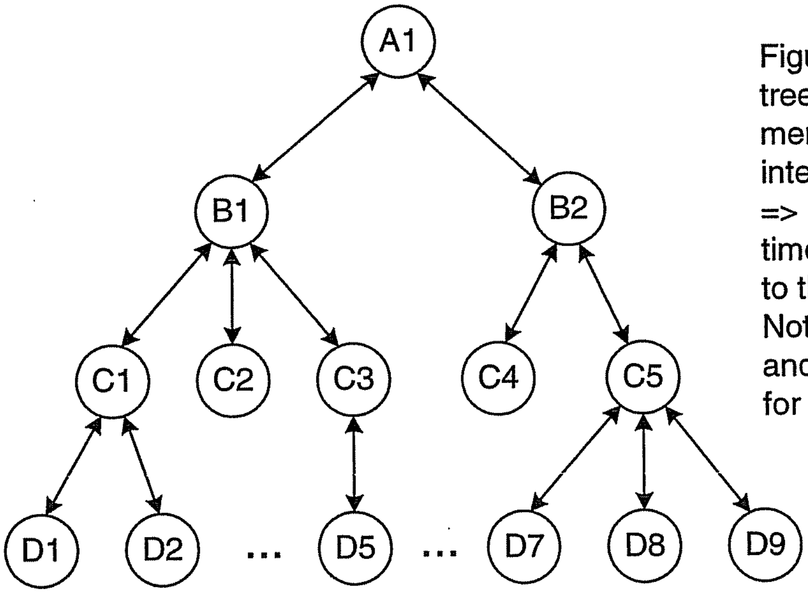

Figure 2. The official organizational chart as a tree. It defines the official relationship among members. For example, for member D1 to interact with D8, the official path is D1 => C1 => B1 => A1 => B2 => C5 => D8. Most of the time, this is not the actual escalation path, du to the existence of other informal relationship. Note that the relationship between a supervis and subordinate is bi-directional. The strength for each direction may be different.

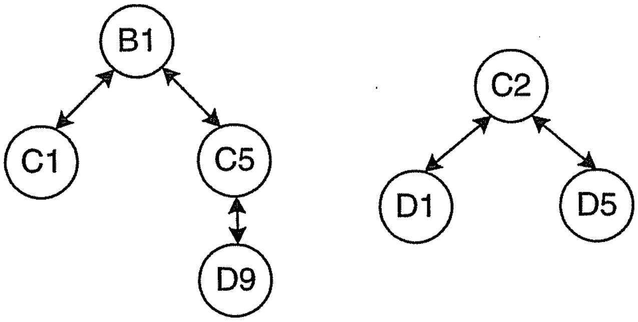

Figure 3. Two organizational charts of two projects. The relationship built in projects last beyond the project lifetime.

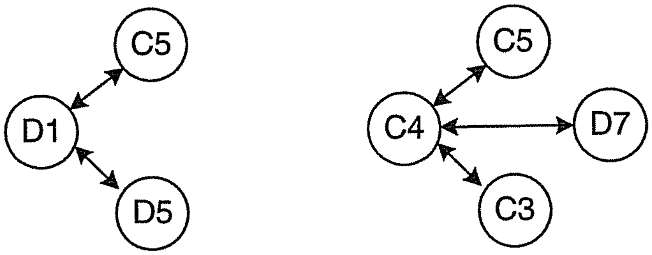

Figure 4. Informal peer relationship from form projects, common personal interests etc. for member D1 and C4.

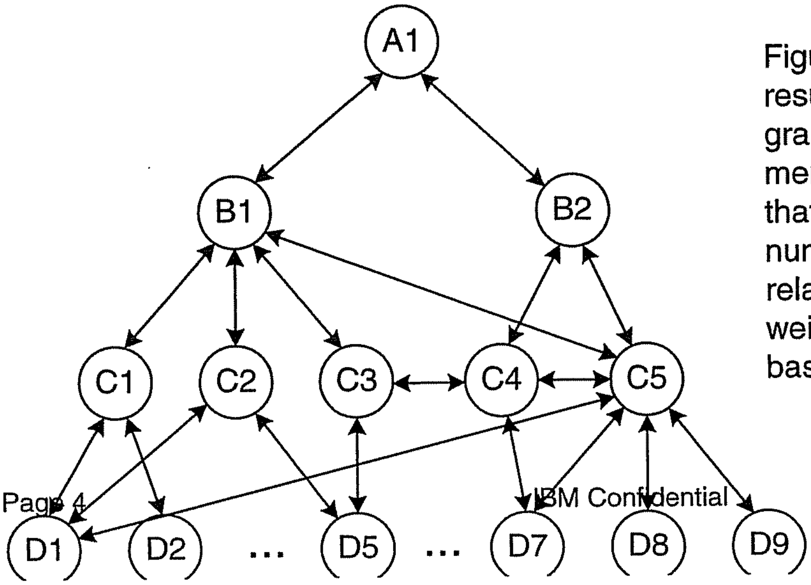

Figure 5. The total organizational chart as a result of all the relationship. It is a directed graph. In this graph, the shortest path betwee member D1 and D8 is D1 => C5 => D8. Note that the relationship can be quantified with a number to indicate the "strength" of the relationship. This turns the system into a weighted directed graph. Queries can be buil based on graph theory.

The peer relationship is further quantified by assigning a number indicating the "strength" between each relationship. Or in terms of graph theory, each edge of the directed graph is assigned a weight. A floating-point number from 0 to 1 is used to represent the strength of each relationship, with 0 the weakest and 1 the strongest. The strength of a path is the product of the strength of each direct connection in the path. For example, if member A has direct relationship with B with a strength of 0.6, and member B has direct relationship with C with a strength of 0.5, the strength of the relationship between A and C through B is 0.3 (0.6 * 0.5).

With the above quantification, the total peer relationship system supports such queries as "Find the strongest connection between member A and B" and "Find the strongest connection to a member with Linux Systems Management skills". In this example, the quantification enables the system to find the member with the strongest Linux Systems Management skills.

Other ways to quantify the graph can also be used. For example, instead of "strength", an integer from 1 to infinity can be used to describe the "distance" between the two graph nodes. Alternative algorithms can also be used to calculate the "strength" (or "distance") between indirectly connected member nodes.

Many organizations already have the member directory systems based on the main official organization charts. These systems can be transformed as the first part of the total peer relationship system. A relationship repository can be built in the same fashion to collect other structures and relationship. The organization should enforce each project to upload the project organization charts and provide an easy-to-use interface to the repository. The system automatically assigns the strength to each relationship based on the project nature (such as the lifetime of the project), to simplify the upload of relationship information. A User Interface for project managers and project members to manually modify relationship information and the associated strength is also desirable. The repository also provides a user interface for individual members to upload the relationship they build. To simplify the process, automation will play an important role. The organization uses filters in communication systems (instant messaging, email, telephone system, etc) to extract the relationship for each member. For example, the fact that member A chats with member B three times a week implies that A and B have a direct relationship. Other analysis tools can also be used to extract various aspects of the member relationship. However, experiments need to be done to better quantify the relationship based on the contacts through such means as instant messaging and email.

We have described a few examples of relationship in the total peer relationship system. Other relationship includes (but not limited to) the organizational mentoring system, health club, interest groups, etc.

The total peer relationship system can be extended to provide information outside of the scope of the organizational structure. For example, many employees within a company communicate and interact with employees from another company. If relationship information such as employee X1 in company X has called or conducted chat sessions with employee Y1 in company Y is stored, then queries such as "Search for someone with connection to employee Y1 in company Y" could be performed.

Note that the same total peer relationship system can be implemented in other systems such as the large online communities.

An additional interface can be exposed to other organizations for Organization To Organization (O2O) collaboration.

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.
The invention is not implemented in a product or prototype.

***Critical Questions (Questions 1-9 must be answered in English)**

***Question 1**
On what date was the invention workable? 08/28/2002 **Please format the date as MM/DD/YYYY**
(Workable means i.e. when you know that your design will solve the problem)

***Question 2**
Is there any planned or actual publication or disclosure of your invention to anyone outside IBM? ○ Yes ● No

If yes, Enter the name of each publication or patent and the date published below.
Publication/Patent:
Date Published or Issued:

Are you aware of any publications, products or patents that relate to this invention? ○ Yes ● No

If yes, Enter the name of each publication or patent and the date published below.
Publication/Patent:
Date Published or Issued:

***Question 3**
Has the subject matter of the invention or a product incorporating the invention been sold, used internally in manufacturing, announced for sale, or included in a proposal? ○ Yes ● No

Is a sale, use in manufacturing, product announcement, or proposal planned? ○ Yes ● No

If Yes, identify the product if known and indicate the date or planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.
Product:
Version/Release:
Code Name:
Date:
To Whom:
If more than one, use cut and paste and append as necessary in the field provided.

***Question 4**
Was the subject matter of your invention or a product incorporating your invention used in public, e.g., outside IBM or in the presence of non-IBMers? ○ Yes ● No

If yes, give a date: **Please format the date as MM/DD/YYYY**

***Question 5**
Have you ever discussed your invention with others not employed at IBM? ○ Yes ● No

If yes, identify individuals and date discussed. Fill in the text area with the following information, the

***Question 6**

[redacted]

○ Yes
● No
○ Not sure

I[redacted]r

***Question 7**

W[redacted]ng:

○ Yes
● No
○ Not Sure

N[redacted]r

[redacted]r

[redacted]e

[redacted]il

Relationship contact phone

***Question 8**

[redacted]

○ Yes
● No

If[redacted]w:

***Question 9**

A[redacted]ns

[redacted]?

○ Yes
● No

If Yes, please provide the docke[redacted]ow:

Question 10

[redacted]

☐ M[redacted]ers
☐ M[redacted]vers
☐ M[redacted]s
☐ M[redacted]s
☐ N[redacted]
☐ [redacted]
☐ [redacted]are
☒ [redacted]are
☐ I[redacted]
☒ S[redacted]
☐ O[redacted]low)

Question 11

[redacted]

[redacted]

This evaluation was entered by [redacted] on **11/14/2002**

[redacted] What is the team's evaluation of this disclosure? [redacted]
Date rated : 11/14/2002
[redacted]

Final Evaluation History	Who made the final evaluation	Final evaluation date
Search	[redacted]	11/14/2002

Search Information

Date sent: 11/14/2002	*[redacted]	[redacted]
Who was the search sent to (This area is to designate a Local Searcher name or WAIPL):WAIPL		
*[redacted]		
*[redacted]		

Search Office Information

[redacted]	☐ [redacted]	[redacted]
[redacted]		
Comments		

Post Disclosure Text & Drawings

Form Revised 09/01/02)

IBM

APPENDIX B

8051 Congress Avenue
Boca Raton, FL 33487

6169-384
/80
09/07/03

March 11, 2003

Akerman, Senterfitt
222 Lakeview Avenue
4th Floor
West Palm Beach, FL 33401

REF: Invention Disclosure: BOC8-2002-0113
Title: **Method To Build Total Peer Relationship System In An Organization**
IBM Docket: BOC9-2003-0016

Dear Kevin,

Please prepare and file the above referenced cases with the U.S. Patent and Trademark Office. A copy of the invention disclosure, patentability search results and inventor's comments are enclosed for your use in preparation of the applications in accordance with IBM's format.

Sincerely,

Richard A. Tomlin

Richard A. Tomlin
(561)862-2732

Enclosures

RECEIVED
DOCKETING
MAR 13 2003
AKERMAN SENTERFITT, P.A.

APPENDIX C

From: Valee Bartels
To: Flores, Romelia H.; Hao, Biao
Date: 10/1/03 12:16PM
Subject: IBM Docket No. BOC9-2003-0016; Our Docket No. 6169-384

Re: Draft Patent Application for RELATIONSHIP MANAGEMENT SYSTEM
IBM Docket No. BOC9-2003-0016; Our Docket No. 6169-384

Dear Inventors:

Attached please find a draft of a patent application and associated drawings for your review in the above-identified matter. Please review the application carefully to ensure that the description of the invention accurately recites all of the invention's characteristics in the broadest possible manner, while also explaining, in detail, the preferred embodiment of the invention. The drawings should also be reviewed to confirm that they accurately depict the various details of the invention as you and your co-inventors understand them.

Importantly, please ensure that each inventor named on the cover sheet of the patent application has contributed to the conception of your invention as described in at least one of these claims. If for some reason we have neglected to list an inventor who has contributed to the conception of subject matter described in a claim, please so advise us immediately.

Once you have reviewed it, please forward your comments and/or any suggestions you may have.

Very truly yours,

AKERMAN SENTERFITT

Brian K. Buchheit*
Akerman Senterfitt
222 Lakeview Avenue, Suite 400
West Palm Beach, FL 33402-3188
Voice: (561) 671-3674
Fax: (561) 659-6313
E-mail: bbuchheit@akerman.com
Web: www.akerman.com
*Licensed to Practice Before the
United States Patent and Trademark Office

Sent on Mr. Buchheit's behalf to
avoid delay

Valee Bartels
Legal Assistant to Kevin T. Cuenot
Akerman, Senterfitt & Eidson, P.A.
222 Lakeview Avenue, Suite 400
West Palm Beach, FL 33401
Ph: 561.653.5000, ext. 3434
Fax: 561.659.6313
E-mail: vbartels@akerman.com

CC: Buchheit, Brian; Cuenot, Kevin T.; Venturelli, Elaine

APPENDIX D

Valee Bartels - Re: IBM Docket No. BOC9-2003-0016; Our Docket No. 6169-384

From: "Biao Hao" <biaohao@us.ibm.com>
To: "Valee Bartels" <VBartels@Akerman.com>
Date: 10/1/2003 4:28 PM
Subject: Re: IBM Docket No. BOC9-2003-0016; Our Docket No. 6169-384
CC: "Brian Buchheit" <BBuchheit@Akerman.com>, "Elaine Venturelli" <eventure@us.ibm.com>, "Kevin T. Cuenot" <KCuenot@Akerman.com>, "Romelia Flores" <rrflores@us.ibm.com>

Valee,

The application and associated drawings accurately recite all of the characteristics and explain in detail the preferred embodiment of our invention (except for a few minor errors/typos). The inventors listed on the cover sheet are accurate.

Here is the list of minor errors/typos.
1. Paragraph 0042 on page 12
The social chart 225 can include social data that can be managed by the relationship management system 205. The social chart 225 can include nodes for three individuals, C1 (should be C2), C5, and D1. In the social chart 225, C2 can have a social relationship with both C5 and D1.
2. Claim 12, 13, and 14 on page 20 and 21:
The relationship management system of claim 12 (should be 11), further comprising: ...
3. Claim 30 and 31 on page 24:
The machine-readable storage of claim 28 (should be 29), further comprising the steps of: ...

Regards,
Biao Hao
Global e-business Solution Center (GeSC)
2 Campus Circle, Mail Stop 02-03-50, Roanoke, TX 76262
Phone: 817-962-6745 | Fax: 817-962-5256 | Mobile: 817-938-8794
Internet: biaohao@us.ibm.com
http://w3.ibm.com/support/stss/gesc.html

"Valee Bartels"
<VBartels@Akerman   To: Biao Hao/Dallas/IBM@IBMUS, Romelia
Flores/Dallas/IBM@IBMUS
.com>   cc: "Brian Buchheit" <BBuchheit@Akerman.com>, "Kevin T.
Cuenot"
<KCuenot@Akerman.com>, Elaine Venturelli/Boca
Raton/IBM@IBMUS
10/01/2003 11:16   Subject: IBM Docket No. BOC9-2003-0016; Our Docket No. 6169-
384
AM